Eur J Vasc Endovasc Surg **22**, 566–567 (2001)
doi:10.1053/ejvs.2001.1463, available online at http://www.idealibrary.com on IDEAL®

LESSON OF THE MONTH

Athletes with Lower Limb Ischaemia

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The case of a young healthy sportsman and acute exacerbation of chronic infragenicular pain is presented. Further investigation revealed an obstruction of the tibiofibular trunk due to an osteochondroma, arising from the fibula, which was immediately resected.
Osteochondroma is observed in 1–2% of the population and may present with vascular complications. In young patients and athletes, leg pain may be of vascular origin due to an entrapment or compression and should always be considered.

Key Words: Compression; Ischaemia; Young; Osteochondroma; Magnetic resonance imaging; Sportsman.

Introduction

Arterial obstructions are rare in young patients. In older patients, atherosclerosis or embolism are the most common causes of arterial obstruction. In young patients, however, external compression by soft tissues, such as in popliteal artery entrapment syndrome, or by bony compression – as in the case presented – are more likely causes.[1]

Case Report

A 23-year-old healthy sportsman had repeatedly complained of infragenicular pain for several months. Ten days after an arthroscopy, he developed severe acute infragenicular pain. On arrival at our hospital, he had no palpable foot pulse. Duplexsonography revealed an occlusion of the tibiofibular trunk, which was confirmed by conventional angiography. Treatment with full-dose heparin was immediately commenced. Magnetic resonance (MR) tomography and angiography with cross-sectional imaging of the knee region, at the level of occlusion, was performed. This revealed a segmental obstruction of the tibiofibular trunk, exactly at the level of an osteocartilaginary exostosis arising from the fibula (Figs 1 and 2). By a medial infragenicular incision, we obtained access to the tibiofibular trunk. The latter as well as the tibial nerve were entrapped by the osseous lesion, which was

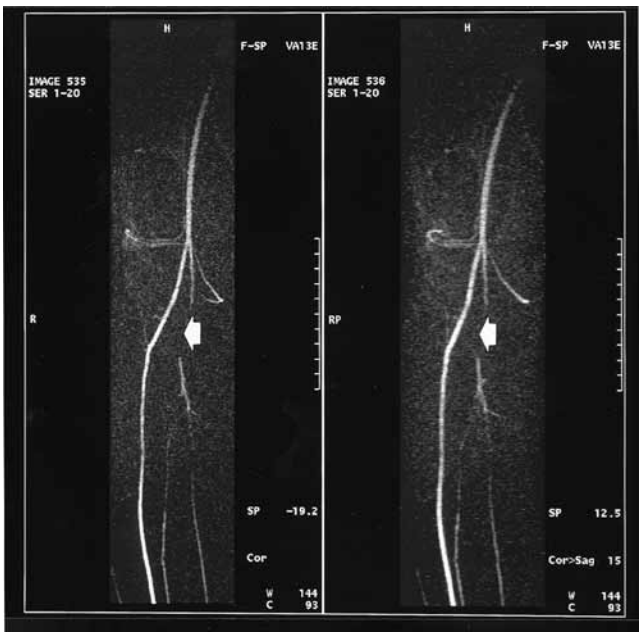

Fig. 1. MR-angiography with a maximum-intensity-projection (MIP)-reconstruction. Note the segmental occlusion of the tibiofibular trunk (arrows). The missing collaterals are a sign of an acute episode.

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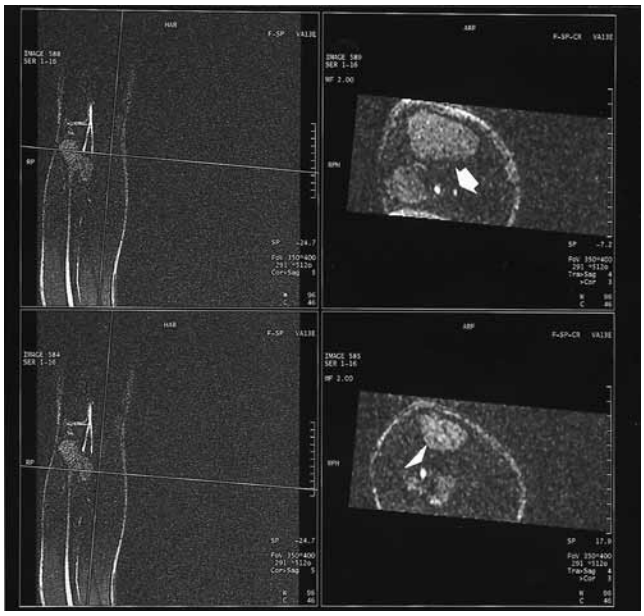

Fig. 2. MR-angiography with muliplanar reconstructions (MPR of the FLASH 3D data) clarified the exact relationship between the level of the occlusion and the osteochondroma. On the axial reconstruction above the tumour (sagittal reference image on the left) both the anterior tibial artery and the tibiofibular trunk (arrow) are clearly visible but, at the level of the tumour, only the anterior tibial artery is evident (arrowhead).

resected. Intraoperative angiography showed free flow in both the anterior and posterior tibial artery. Arterial reconstruction was not necessary. Histology revealed an osteochondroma. A postoperative duplex confirmed no residual arterial obstruction and the postoperative course was uneventful.

Discussion

Osteochondroma is the most common benign tumour of the bone, appearing during the growth period and developing mostly in long bones. It is observed in 1–2% of the population.[1,2] Osteochondromas are usually asymptomatic and vascular complications of osteochondroma are rare. A review of the literature reveals 97 such cases.[1] MR imaging has been reported to be a useful diagnostic method for symptomatic osteochondroma.[3,4] Urgent surgical exploration is the treatment of choice in acute vascular lesions.

In the case presented – in spite of the urgent situation – we decided to search for a local problem by MR imaging of the knee which revealed the underlying pathology. The role of the earlier arthroscopy remains unclear: postinterventional oedema may have triggered the compression. Alternatively, the patient may already have had chronic lower grade ischaemia, which was interpreted as a knee problem and lead to the arthroscopy during which only minor pathology was found. To our knowledge, a vascular cause of the chronic leg pain was not suspected prior to the arthroscopy, but we have no information on the pedal pulses of the patient at that time.

We conclude that leg pain in athletes may be of a vascular origin. In young patients with exercise-related leg pain the possibility of arterial entrapment or compression should always be considered.

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Accepted date 5 July 2001